

Appendix RF Test Data for BLE

Company: : Shenzhen Speediance Living Technology Co., Ltd

EUT : Interactive Multi-Media DigitalFitness Equipment

FCC ID: : 2A4WP-GMB3100A1

Model Number : GMB3100A1

Report No. : HTT202606678F01

Reviewed By : Heber He

1. Duty Cycle

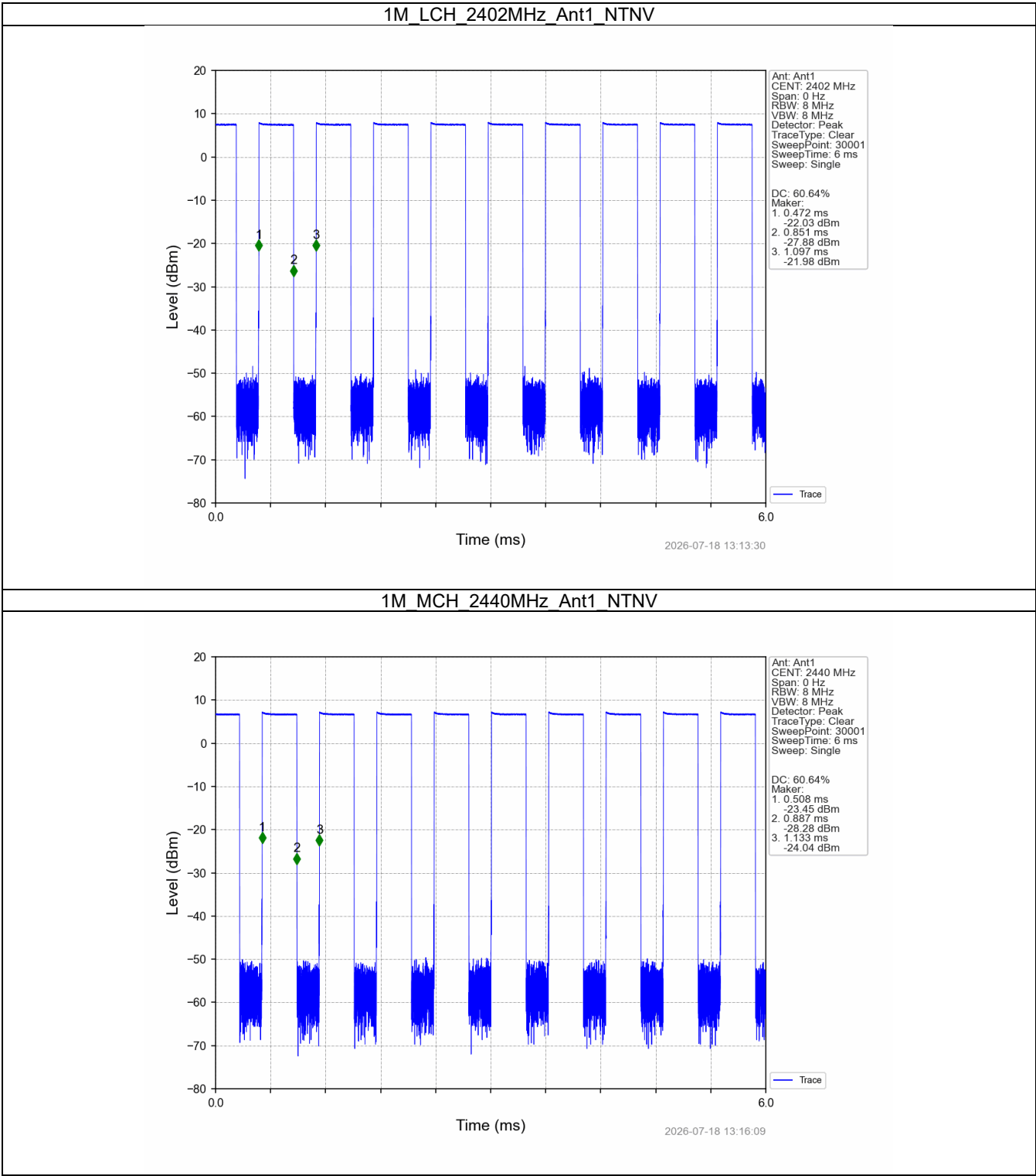
1.1 Test Result

1.1.1 Ant1

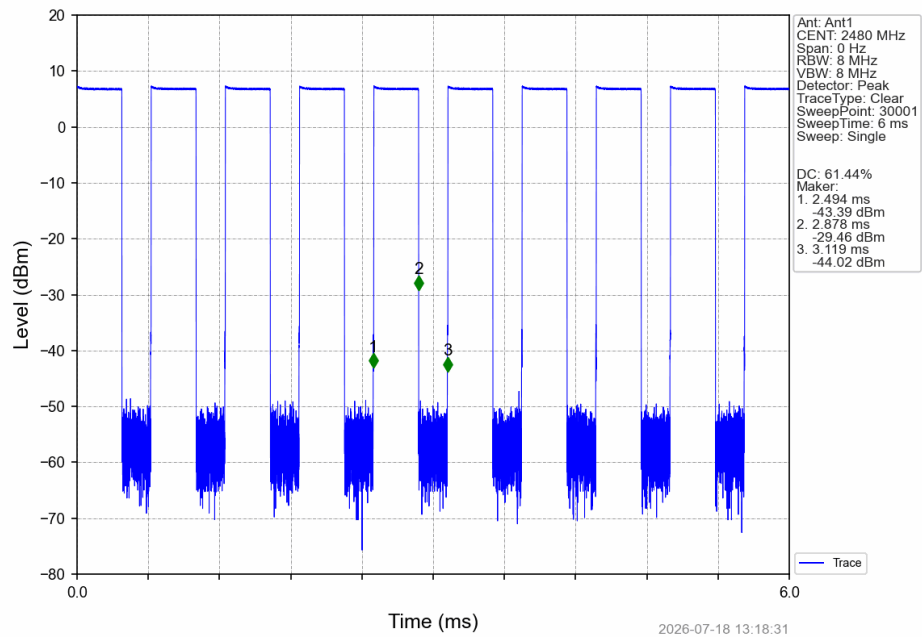
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.379	0.625	60.64	2.17	0.00
		2440	0.379	0.625	60.64	2.17	0.03
		2480	0.384	0.625	61.44	2.12	0.05
2M	SISO	2402	0.200	0.625	32.00	4.95	0.00
		2440	0.200	0.625	32.00	4.95	0.04
		2480	0.201	0.625	32.16	4.93	0.05

1.2 Test Graph

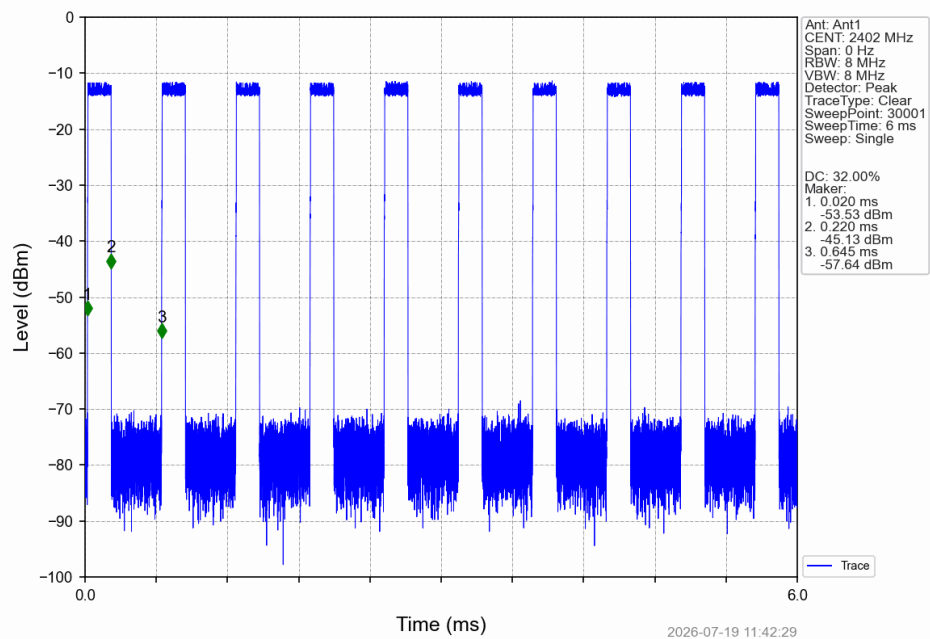
1.2.1 Ant1



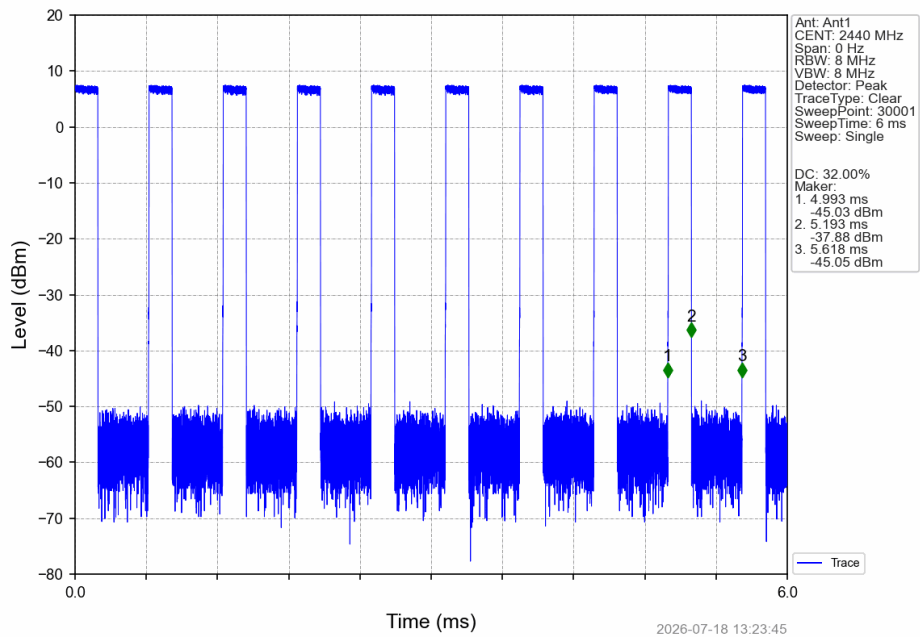
1M HCH 2480MHz Ant1 NTN



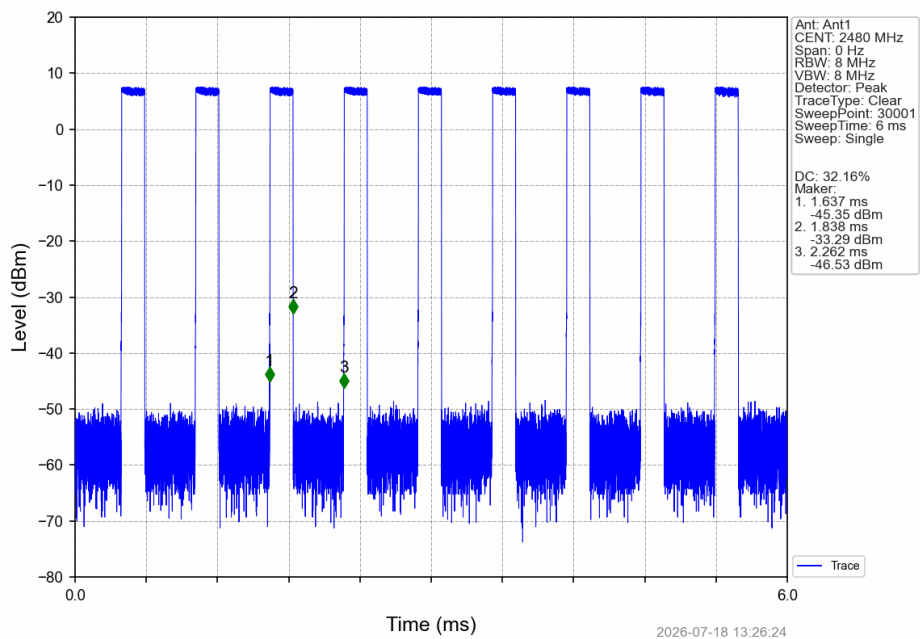
2M LCH 2402MHz Ant1 NTN



2M MCH 2440MHz Ant1 NTN



2M_HCH_2480MHz_Ant1 NTN



2. Bandwidth

2.1 Test Result

2.1.1 OBW

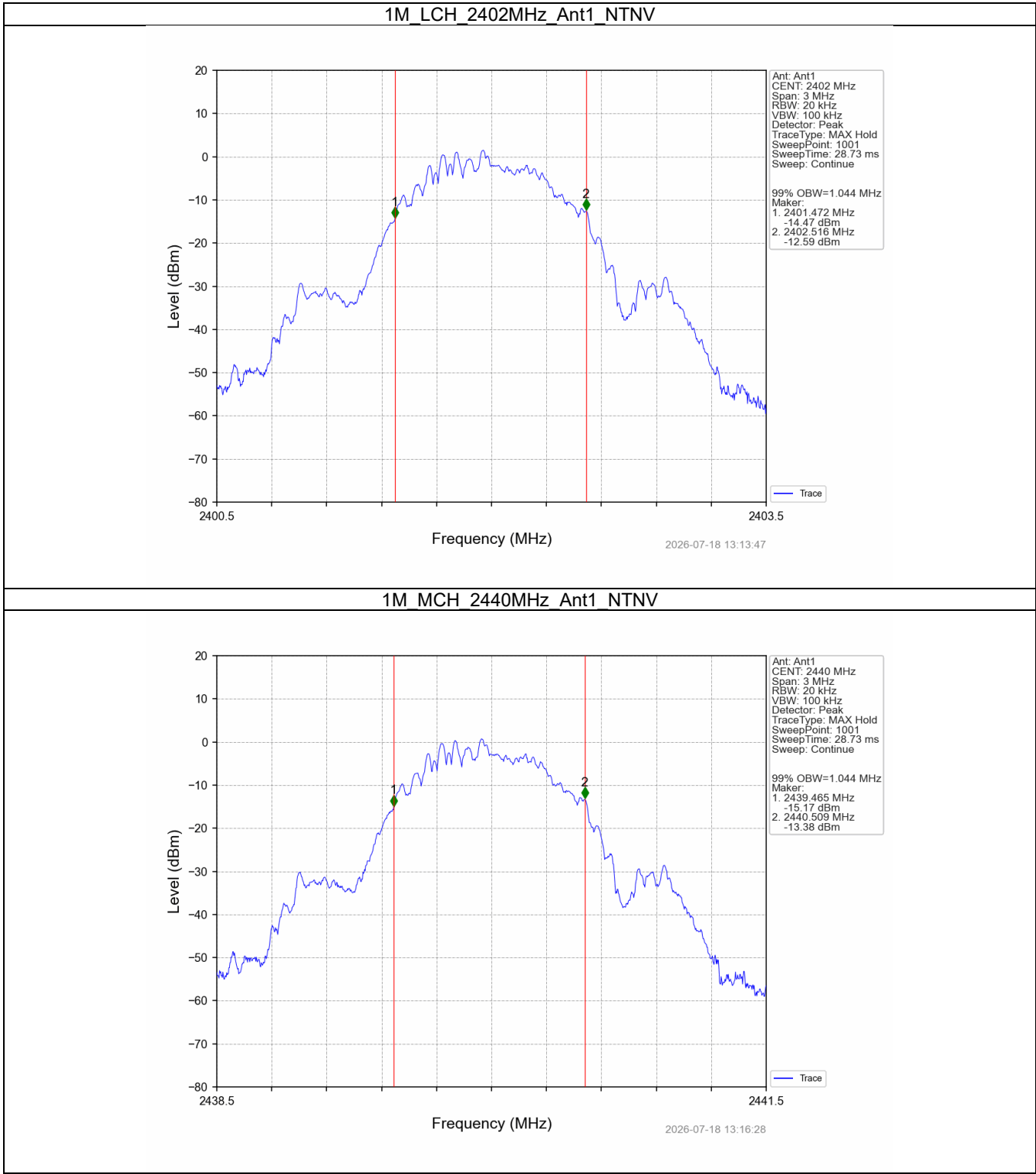
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.044	/	Pass
		2440	1	1.044	/	Pass
		2480	1	1.043	/	Pass
2M	SISO	2402	1	2.096	/	Pass
		2440	1	2.101	/	Pass
		2480	1	2.097	/	Pass

2.1.2 6dB BW

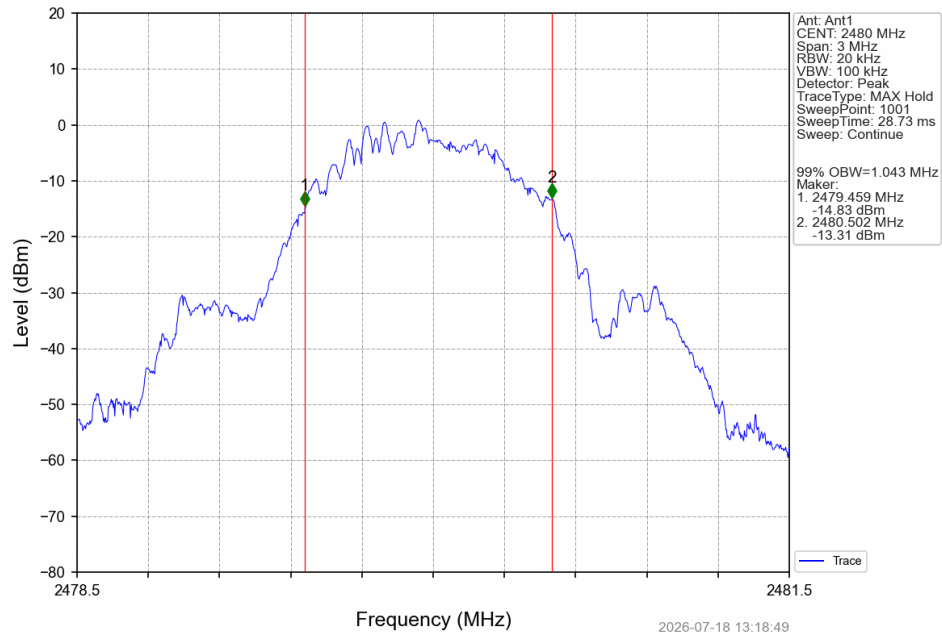
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.691	≥ 0.5	Pass
		2440	1	0.692	≥ 0.5	Pass
		2480	1	0.700	≥ 0.5	Pass
2M	SISO	2402	1	1.355	≥ 0.5	Pass
		2440	1	1.348	≥ 0.5	Pass
		2480	1	1.353	≥ 0.5	Pass

2.2 Test Graph

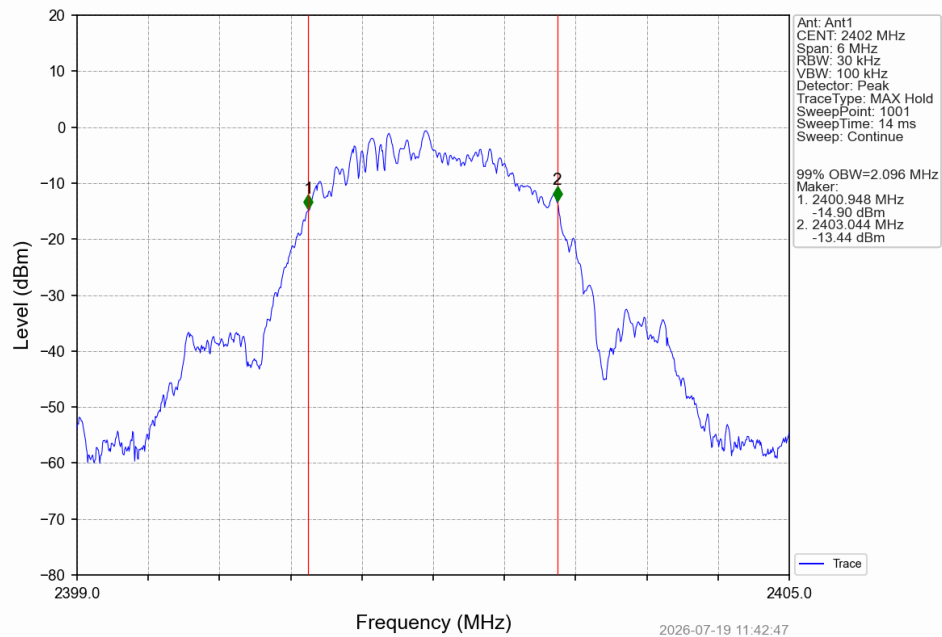
2.2.1 OBW



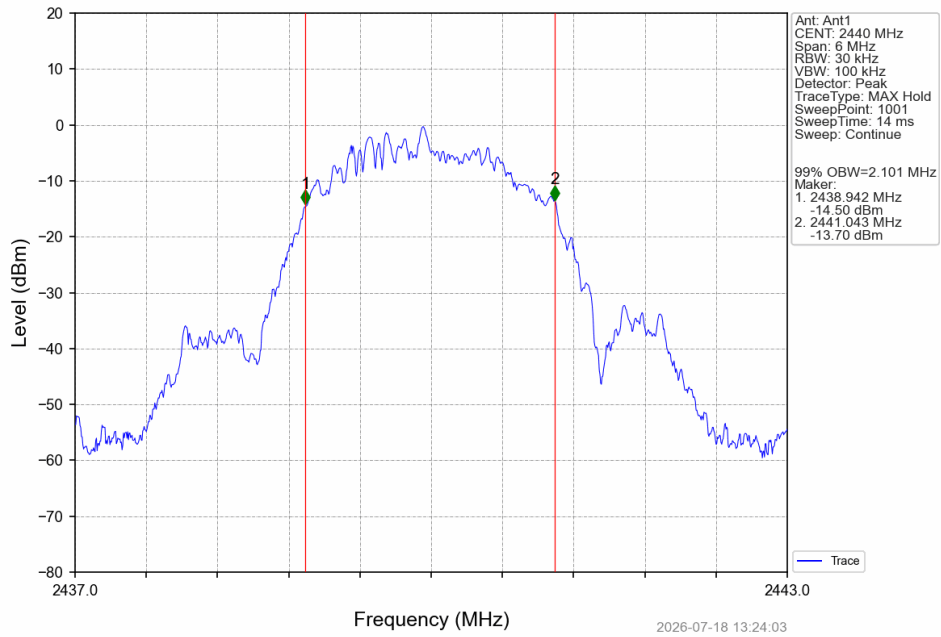
1M HCH 2480MHz Ant1 NTN



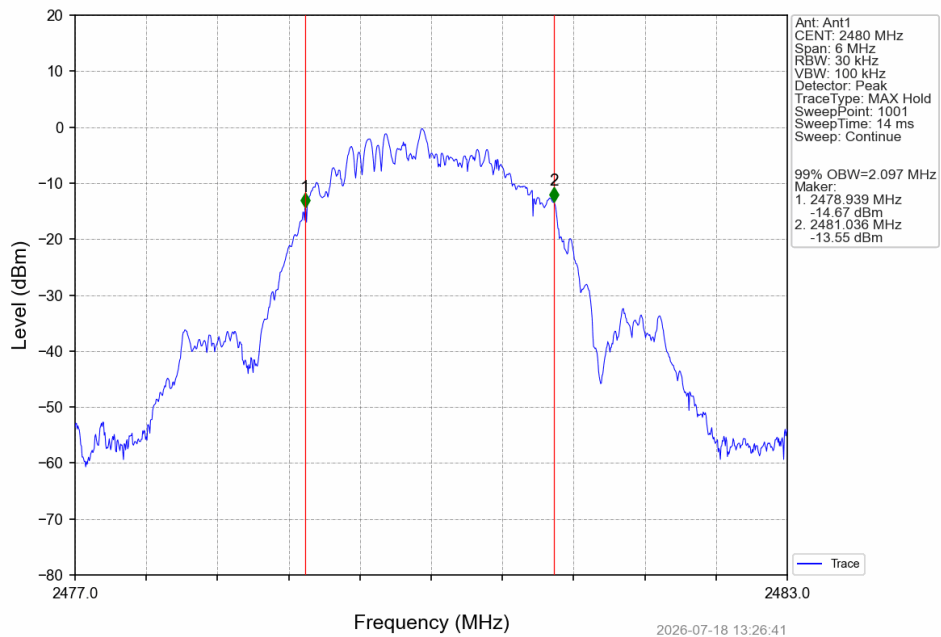
2M LCH 2402MHz Ant1 NTN



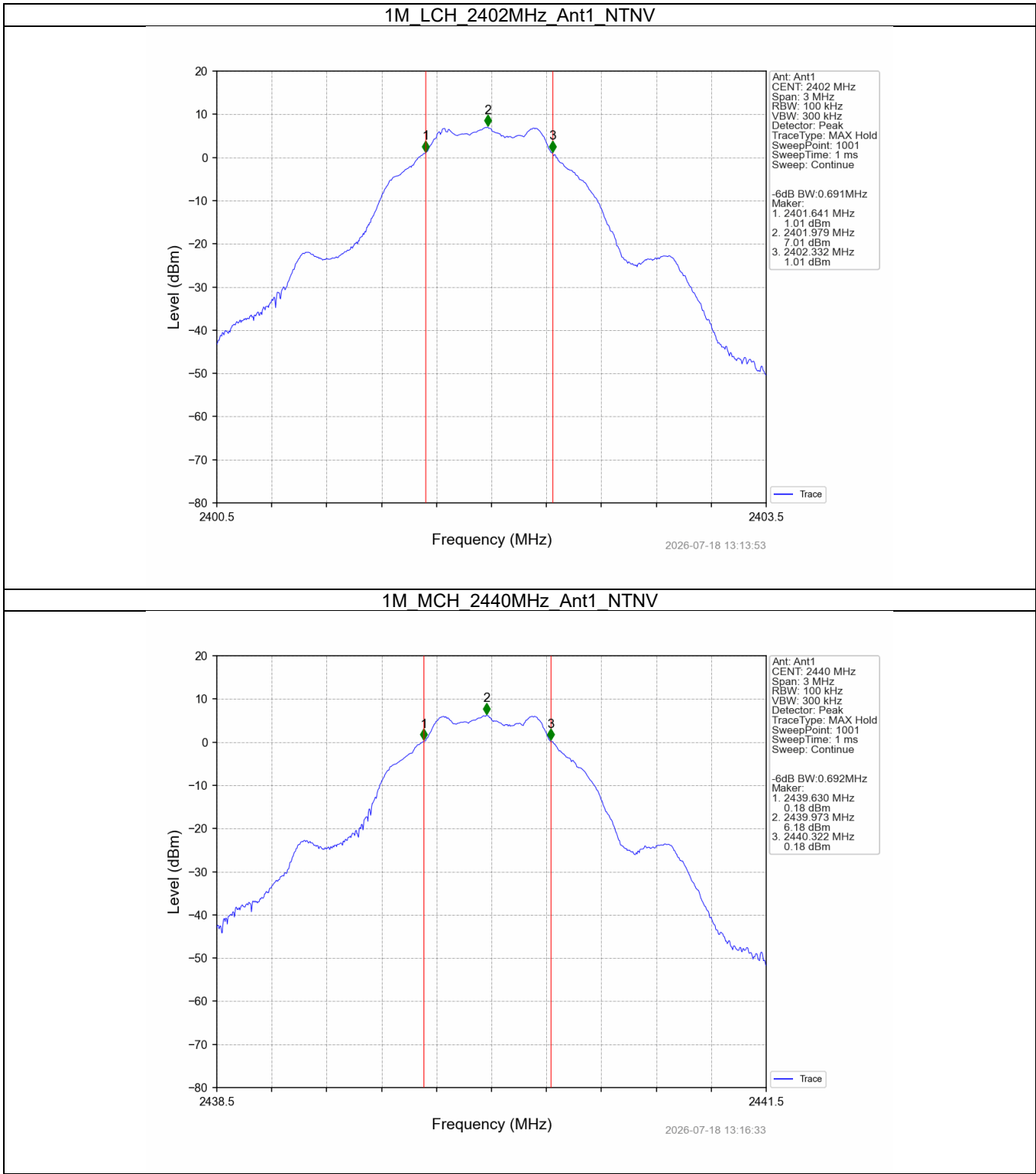
2M MCH 2440MHz Ant1 NTN



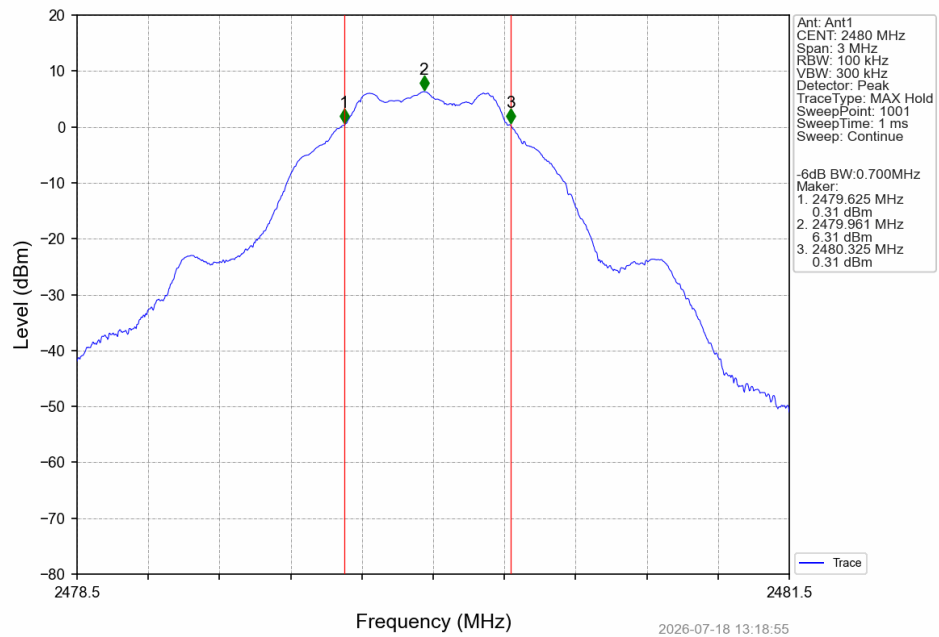
2M_HCH_2480MHz_Ant1 NTN



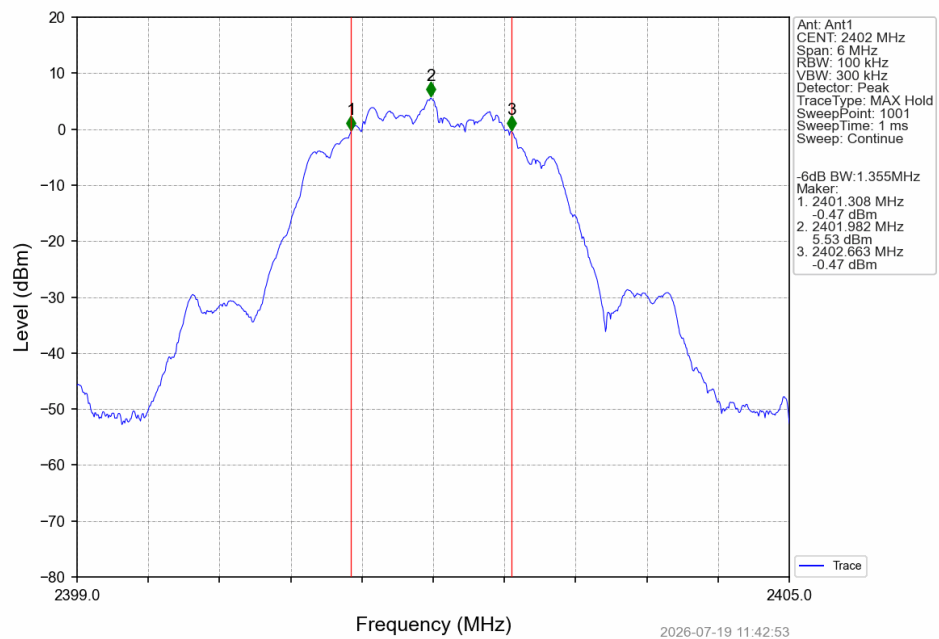
2.2.2 6dB BW



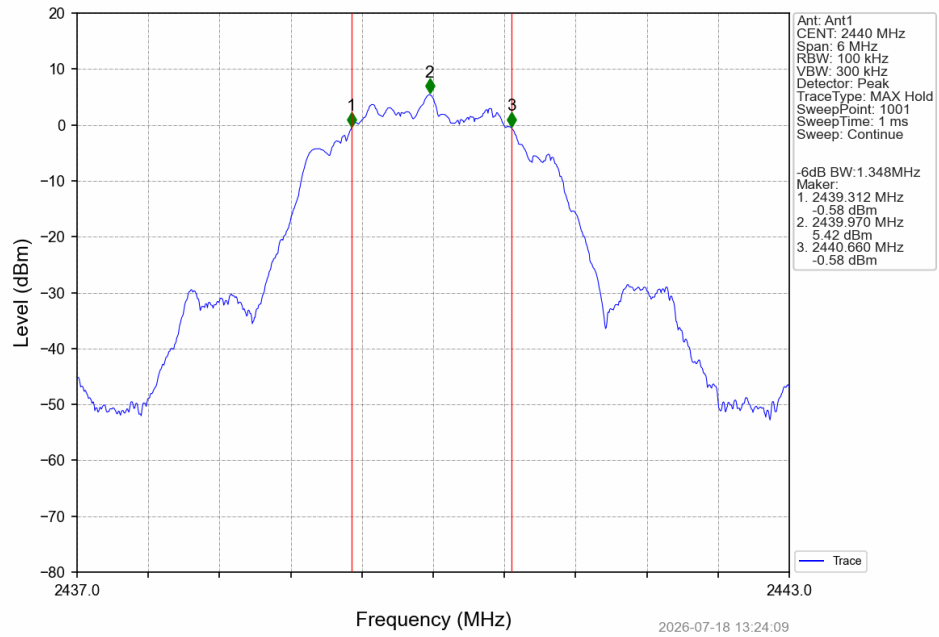
1M HCH 2480MHz Ant1 NTN



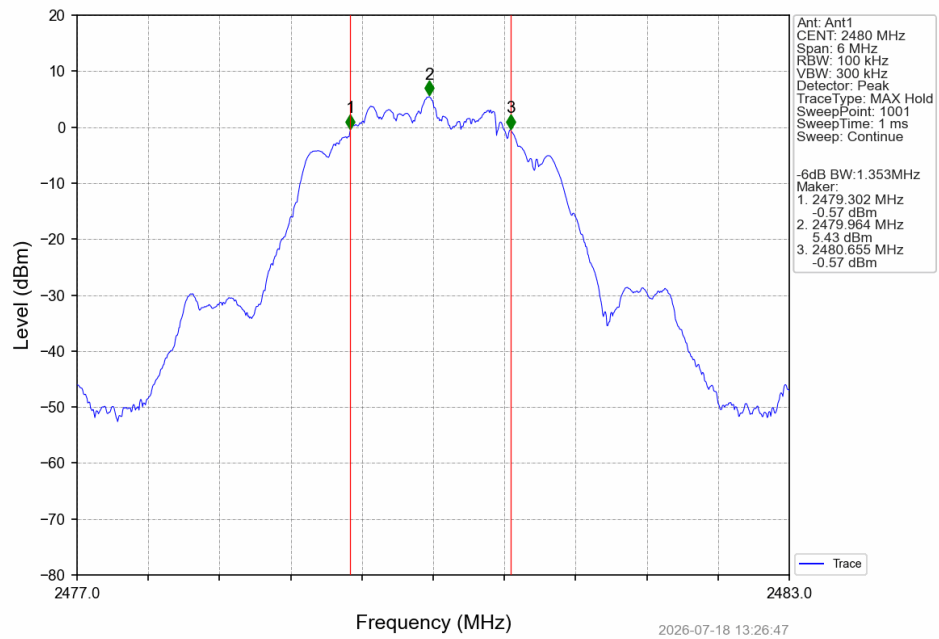
2M LCH 2402MHz Ant1 NTN



2M MCH 2440MHz Ant1 NTN



2M_HCH_2480MHz_Ant1 NTN



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	7.89	<=30	Pass
		2440	7.13	<=30	Pass
		2480	7.18	<=30	Pass
2M	SISO	2402	7.66	<=30	Pass
		2440	7.42	<=30	Pass
		2480	7.48	<=30	Pass

4. Maximum Power Spectral Density

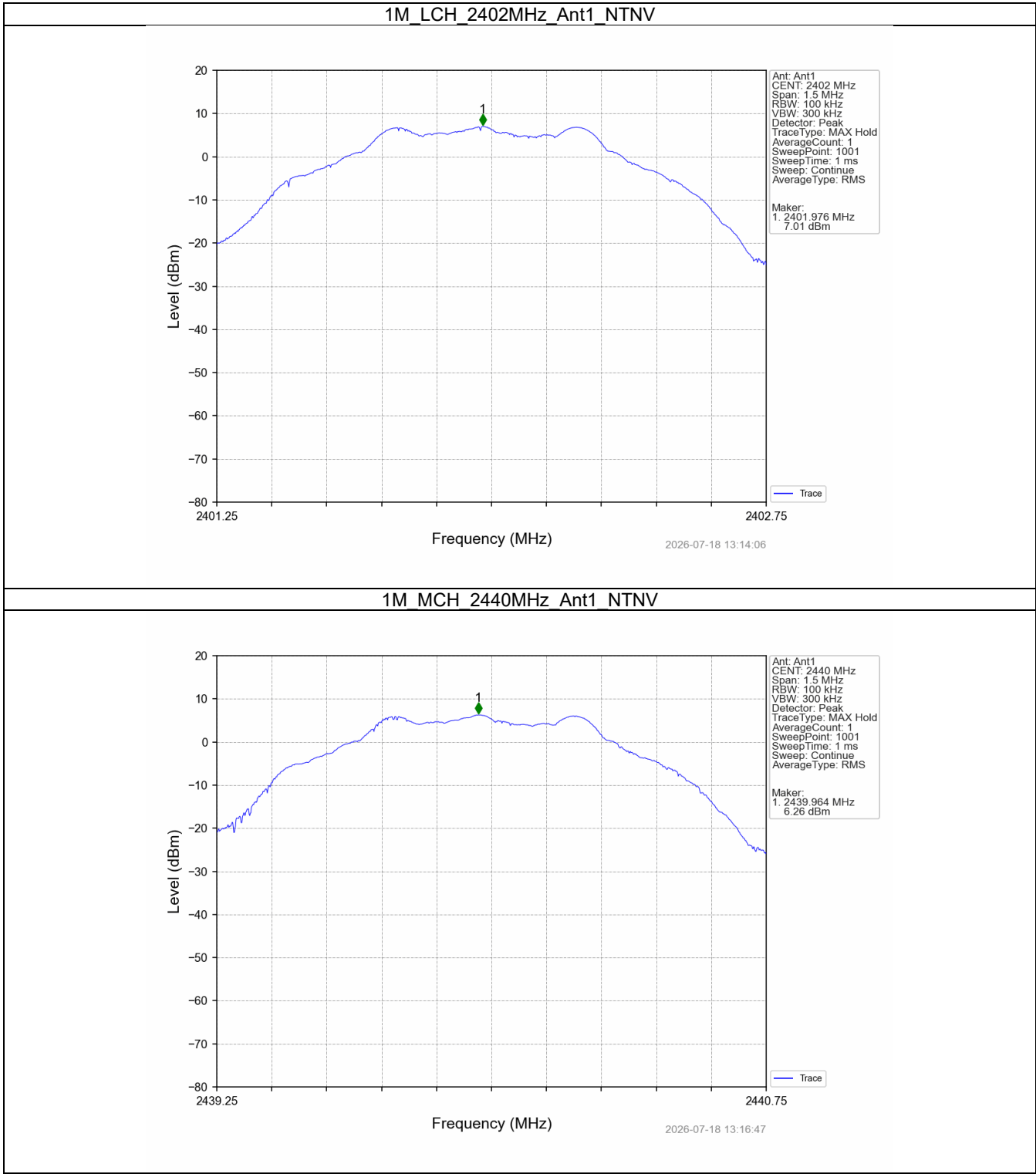
4.1 Test Result

4.1.1 PSD

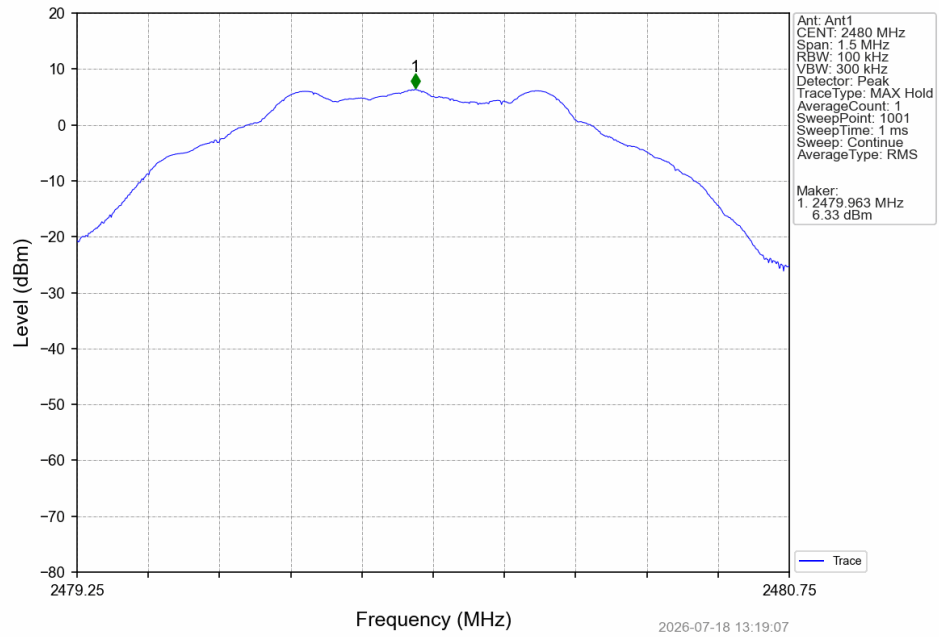
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
1M	SISO	2402	7.01dBm/100kHz	<=8	Pass
		2440	6.26dBm/100kHz	<=8	Pass
		2480	6.33dBm/100kHz	<=8	Pass
2M	SISO	2402	5.52dBm/100kHz	<=8	Pass
		2440	5.39dBm/100kHz	<=8	Pass
		2480	5.46dBm/100kHz	<=8	Pass

4.2 Test Graph

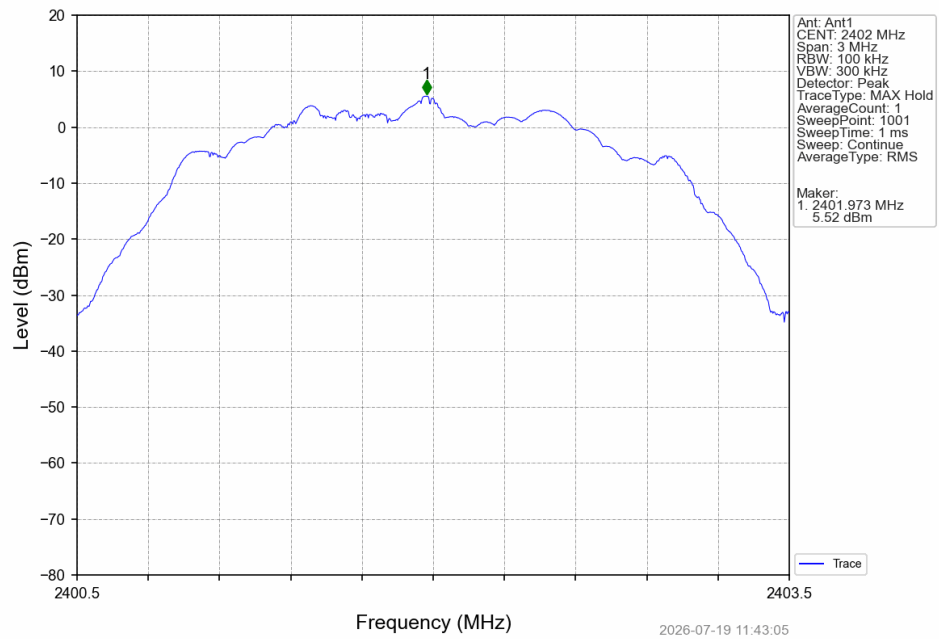
4.2.1 PSD



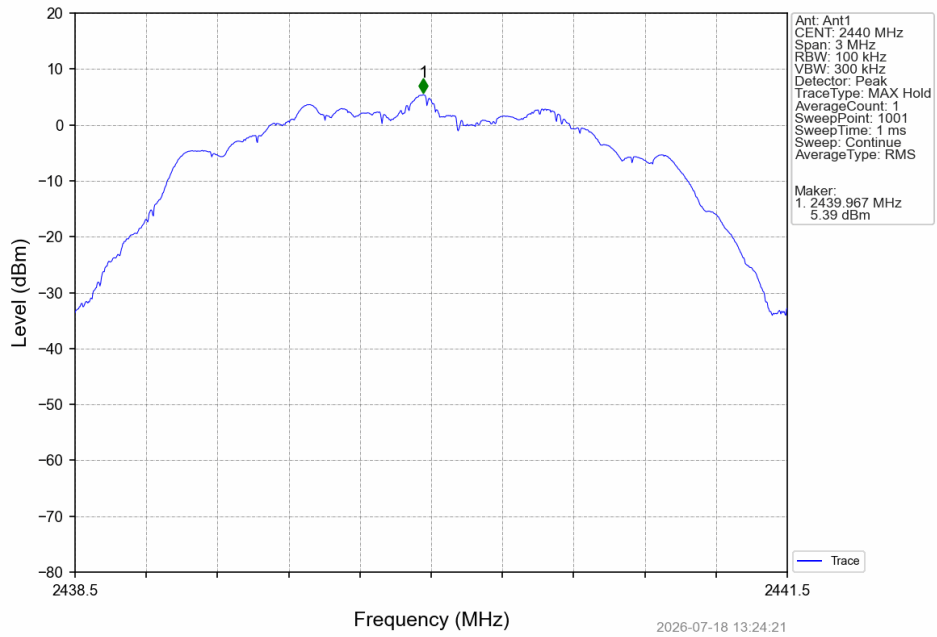
1M HCH 2480MHz Ant1 NTN



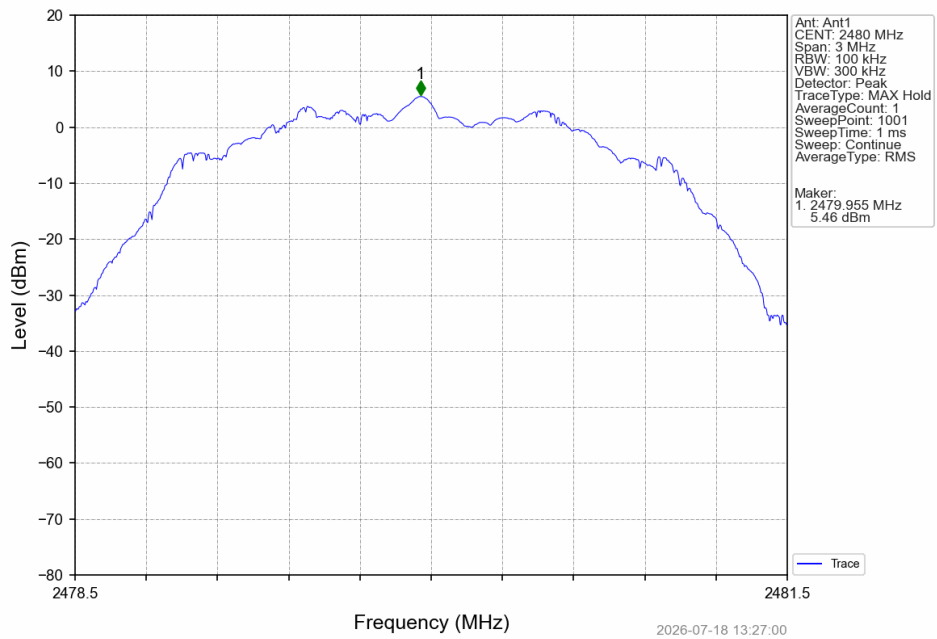
2M LCH 2402MHz Ant1 NTN



2M MCH 2440MHz Ant1 NTN



2M_HCH_2480MHz_Ant1 NTN



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

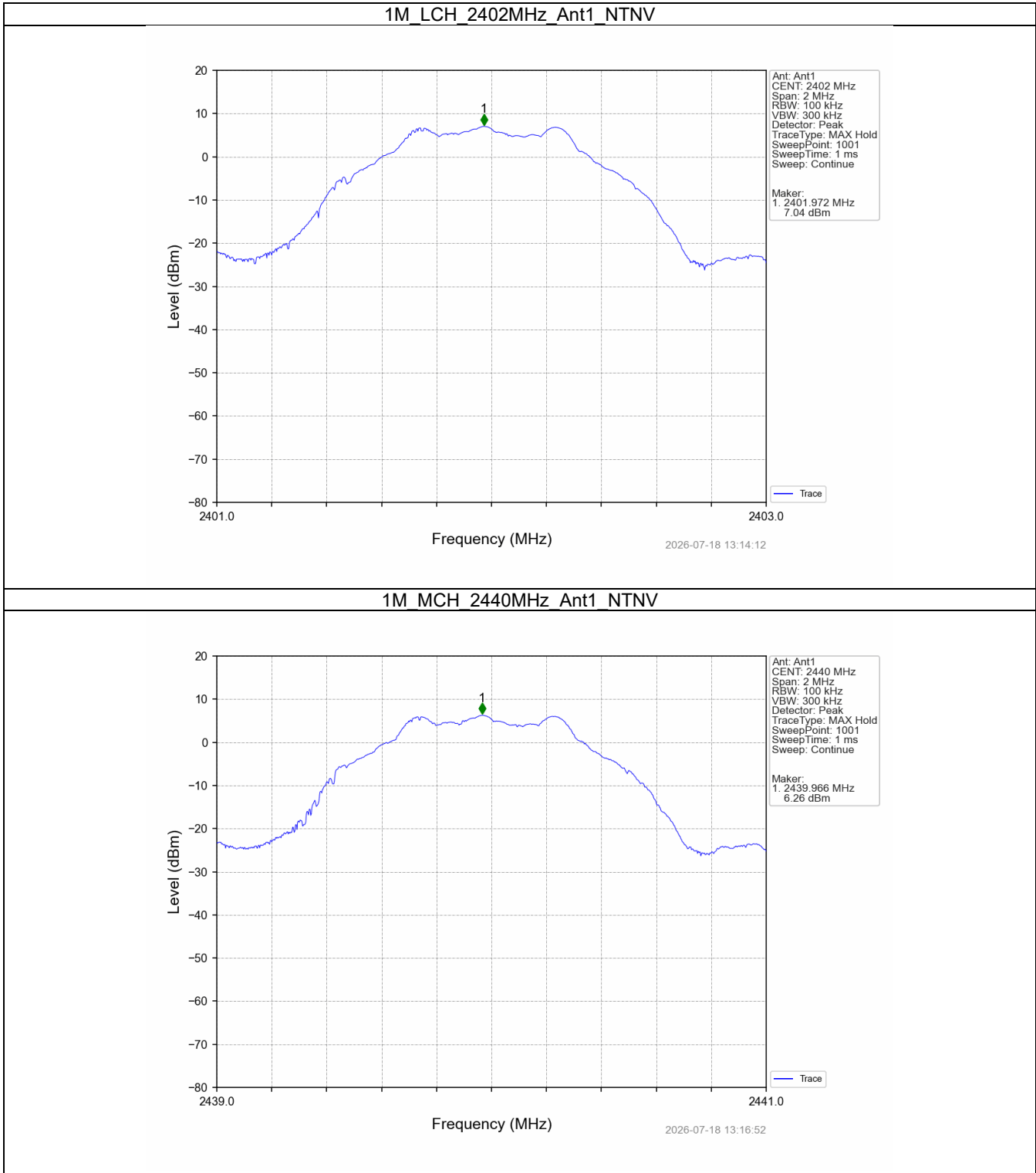
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	7.04
		2440	1	6.26
		2480	1	6.32
2M	SISO	2402	1	5.54
		2440	1	5.41
		2480	1	5.46

5.1.2 CSE

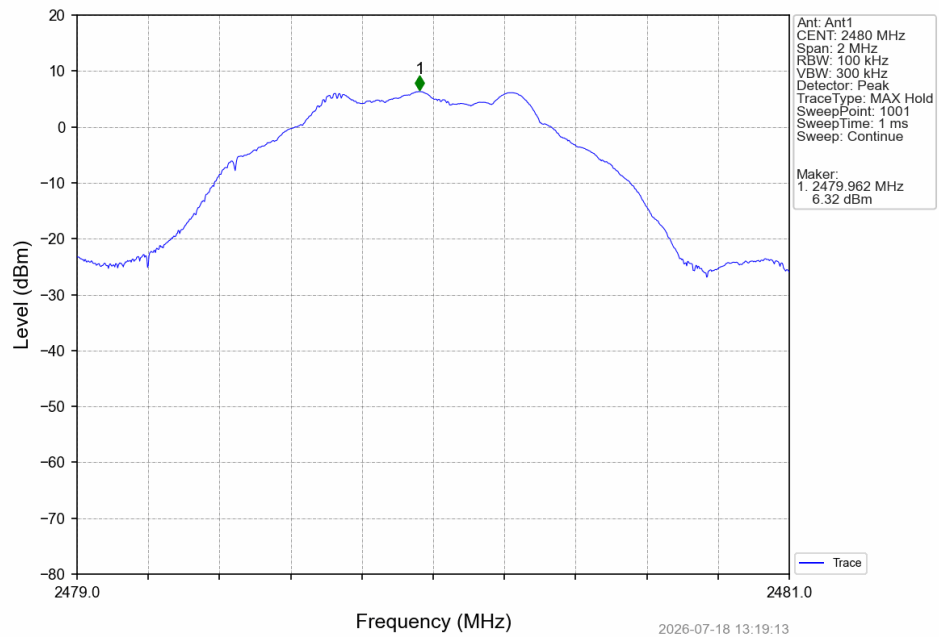
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	7.04	-12.96	Pass
		2440	1	6.26	-13.74	Pass
		2480	1	6.32	-13.68	Pass
2M	SISO	2402	1	5.54	-14.46	Pass
		2440	1	5.41	-14.59	Pass
		2480	1	5.46	-14.54	Pass

5.2 Test Graph

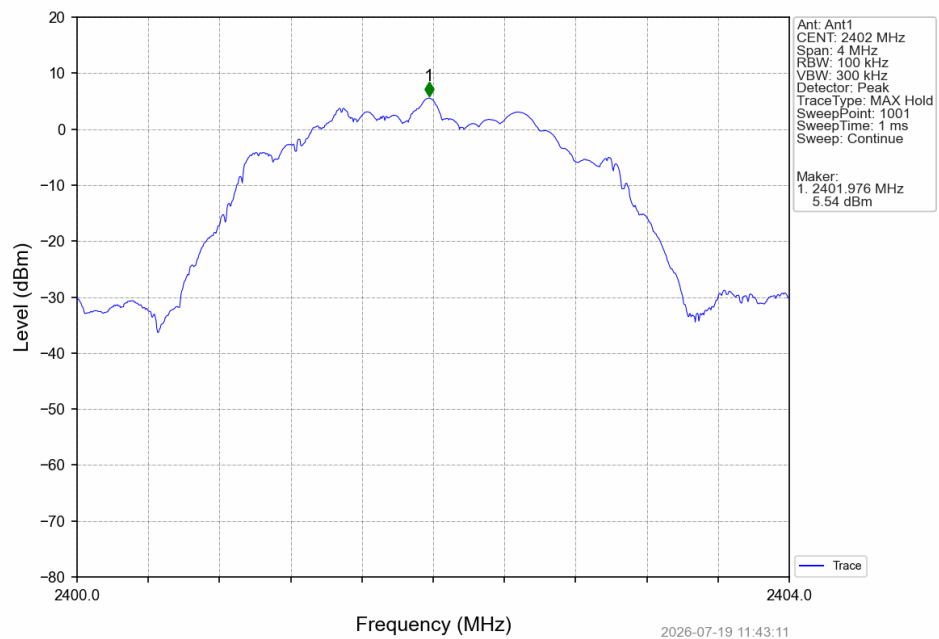
5.2.1 Ref



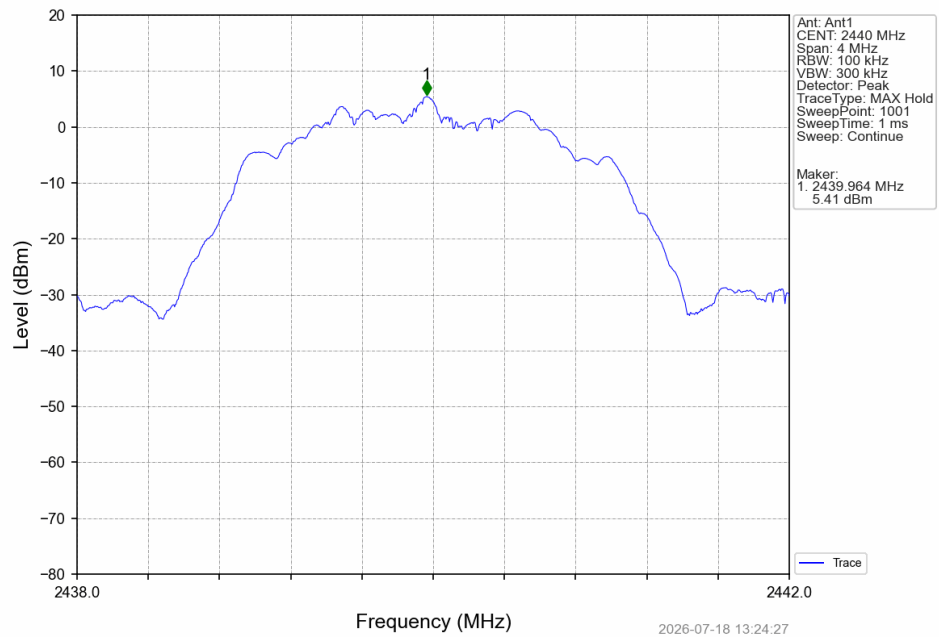
1M HCH 2480MHz Ant1 NTN



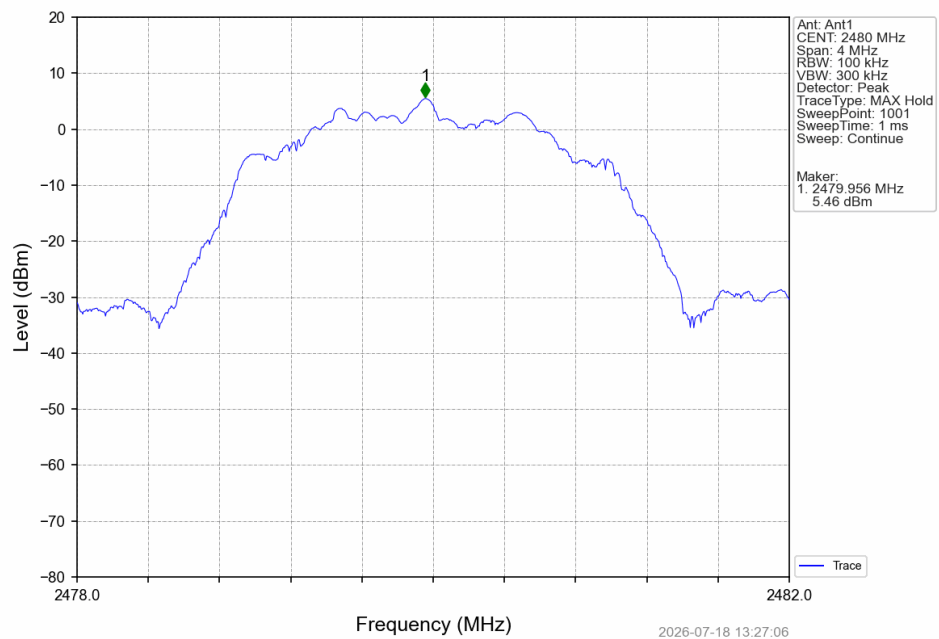
2M_LCH_2402MHz_Ant1_NTN



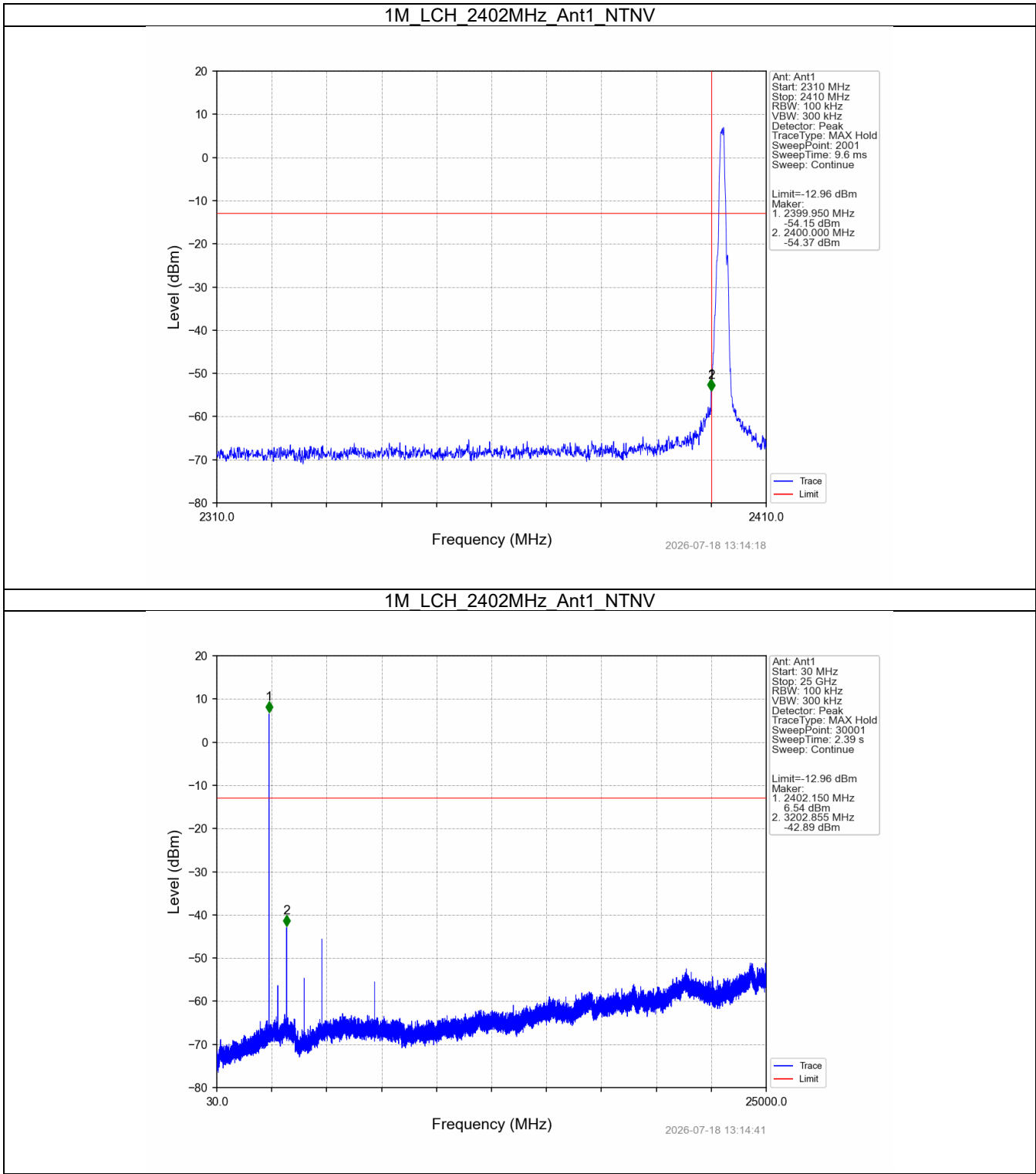
2M MCH 2440MHz Ant1 NTN



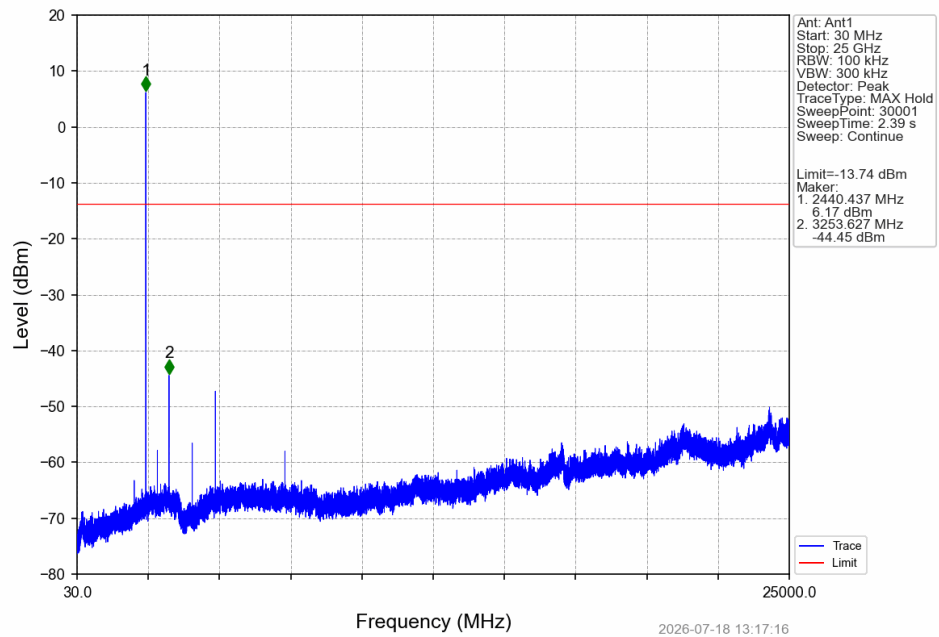
2M_HCH_2480MHz_Ant1_NTNV



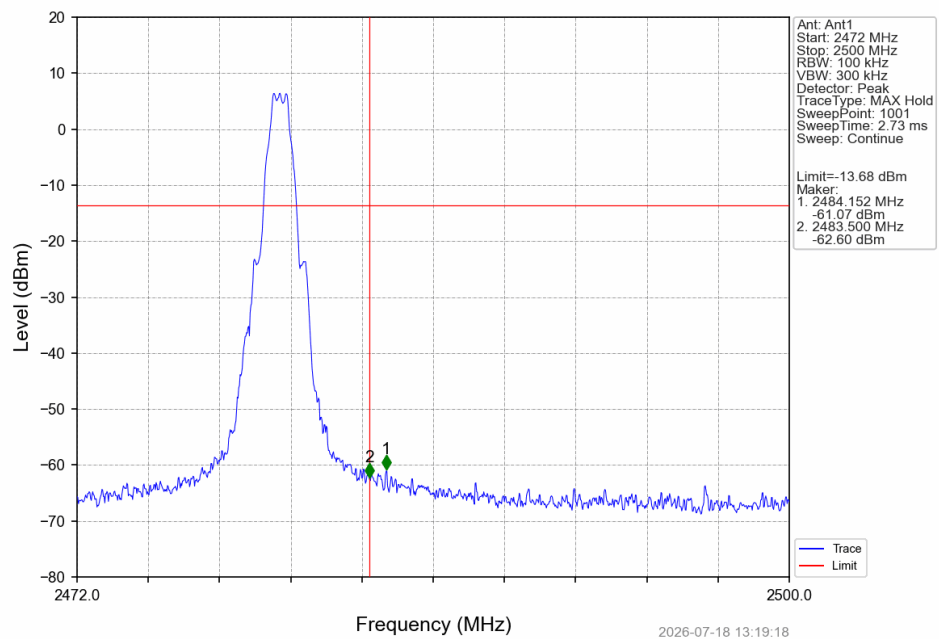
5.2.2 CSE



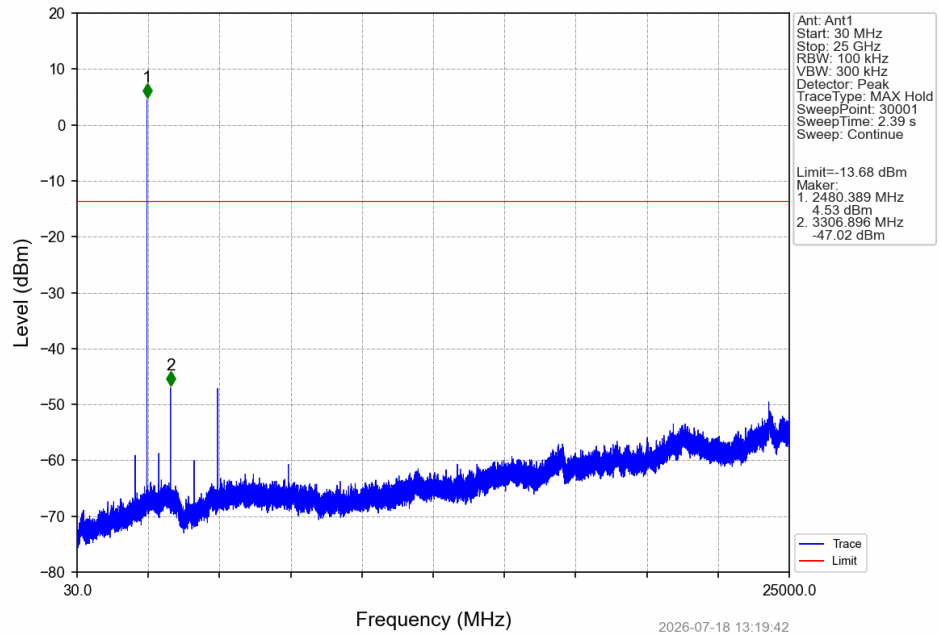
1M MCH 2440MHz Ant1 NTN



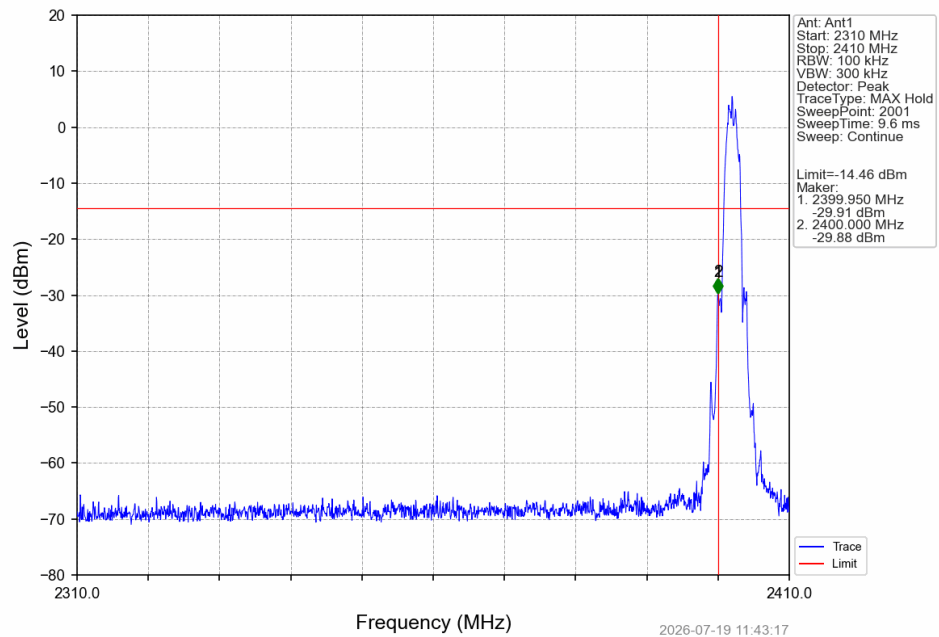
1M_HCH_2480MHz_Ant1 NTN



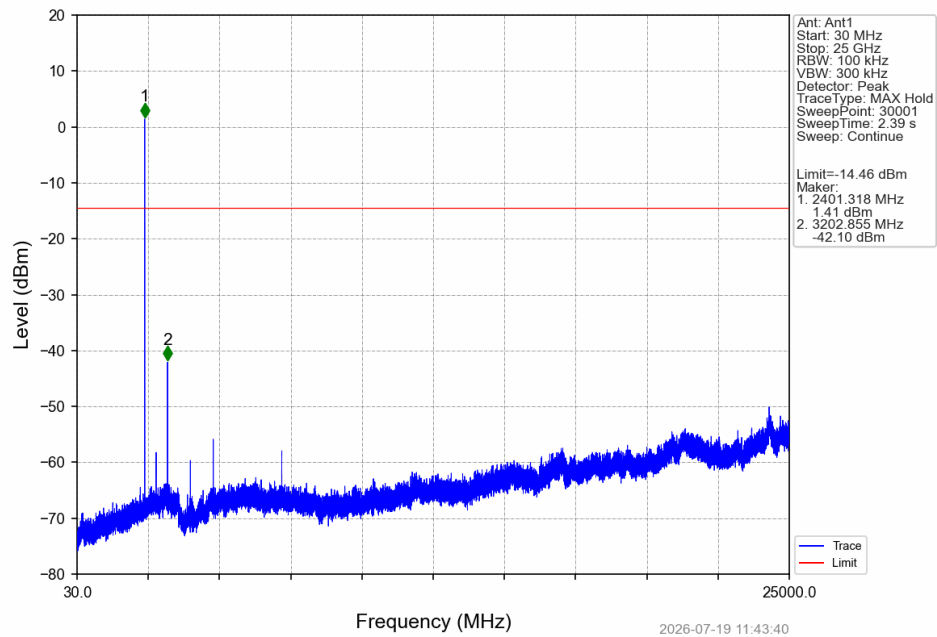
1M HCH 2480MHz Ant1 NTN



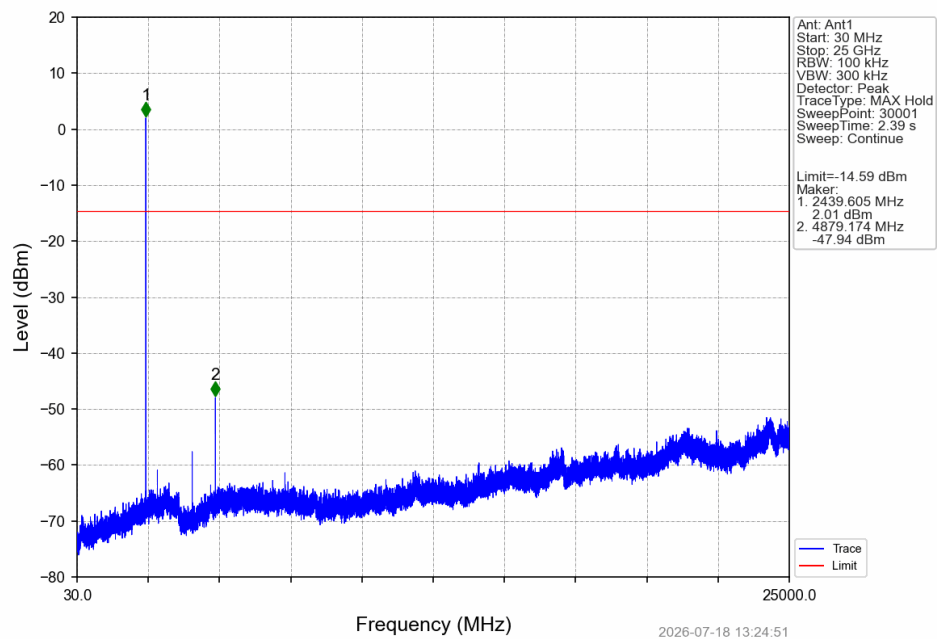
2M_LCH_2402MHz_Ant1_NTN



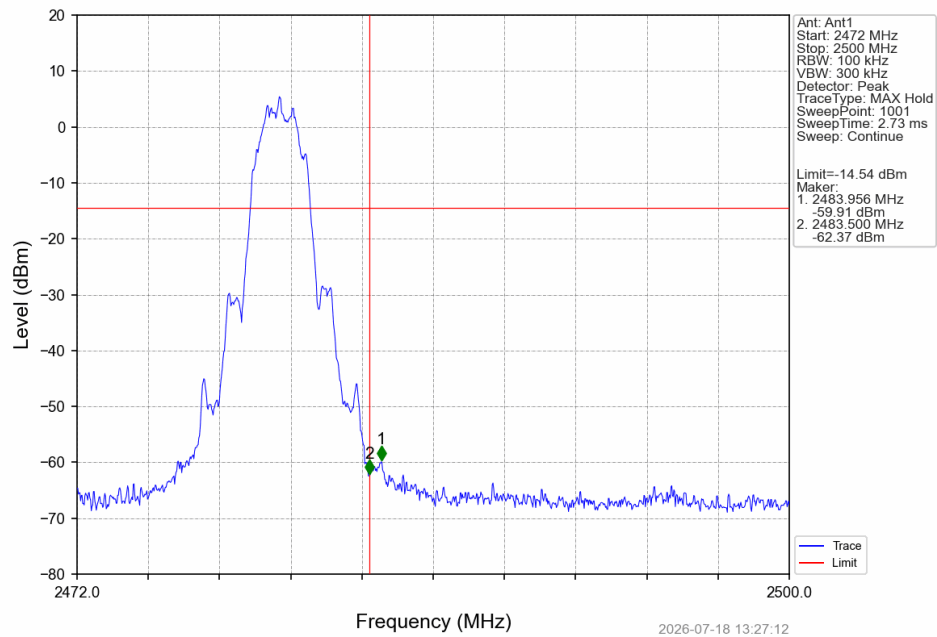
2M LCH 2402MHz Ant1 NTN



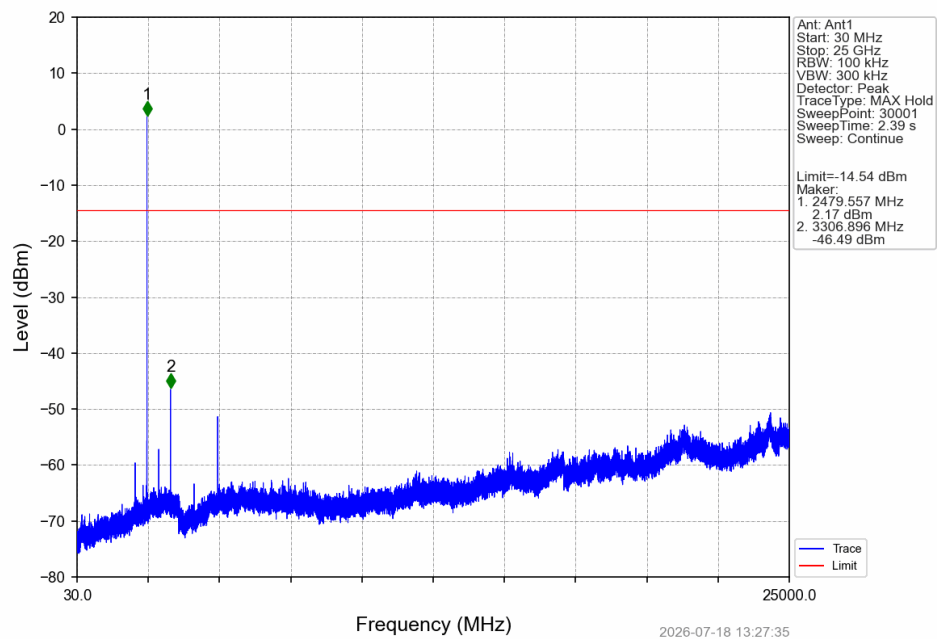
2M_MCH_2440MHz_Ant1 NTN



2M HCH 2480MHz Ant1 NTN



2M_HCH_2480MHz_Ant1_NTNV



6. Unwanted Emissions In Restricted Frequency Bands

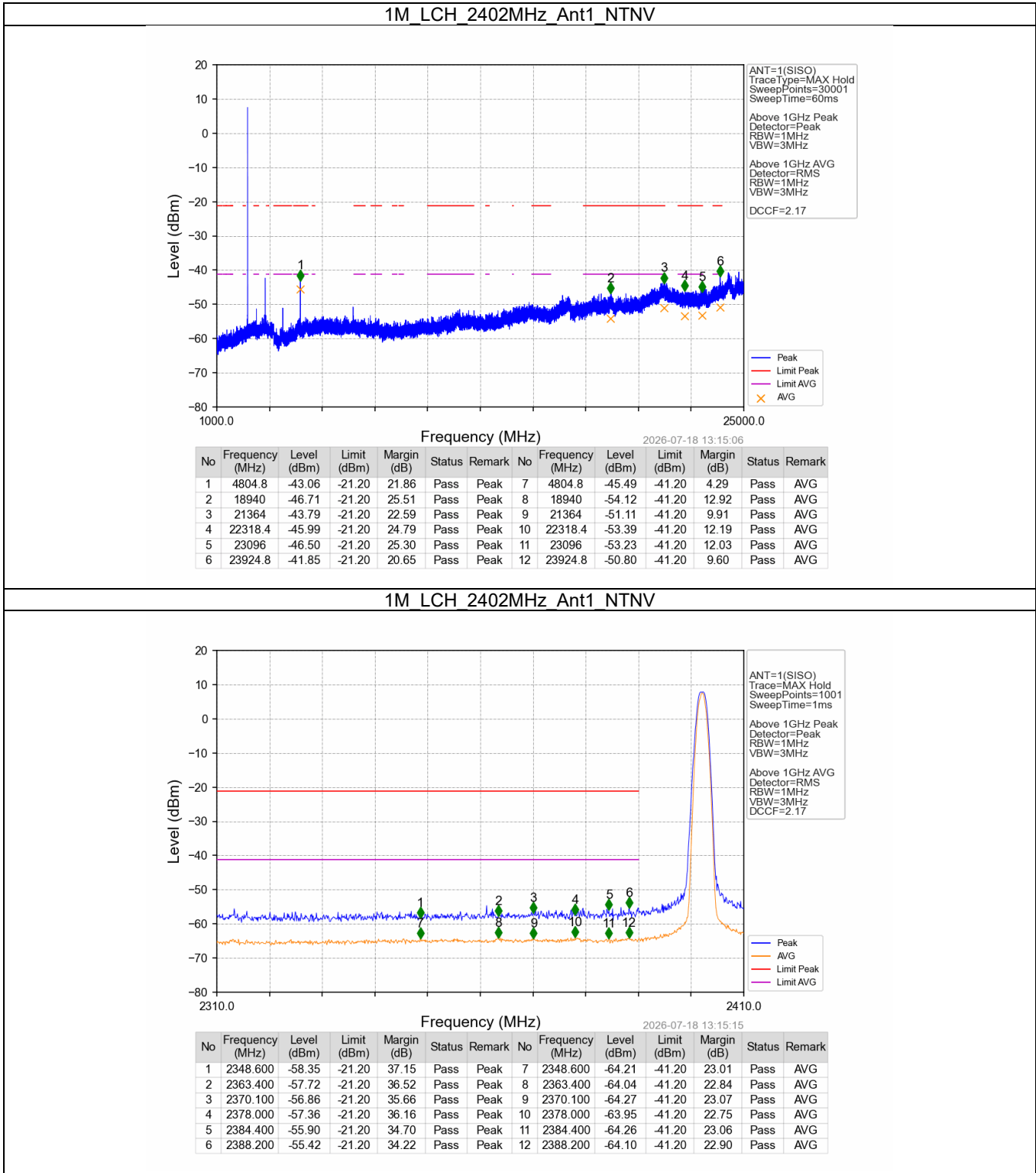
6.1 Test Result

6.1.1 RSE

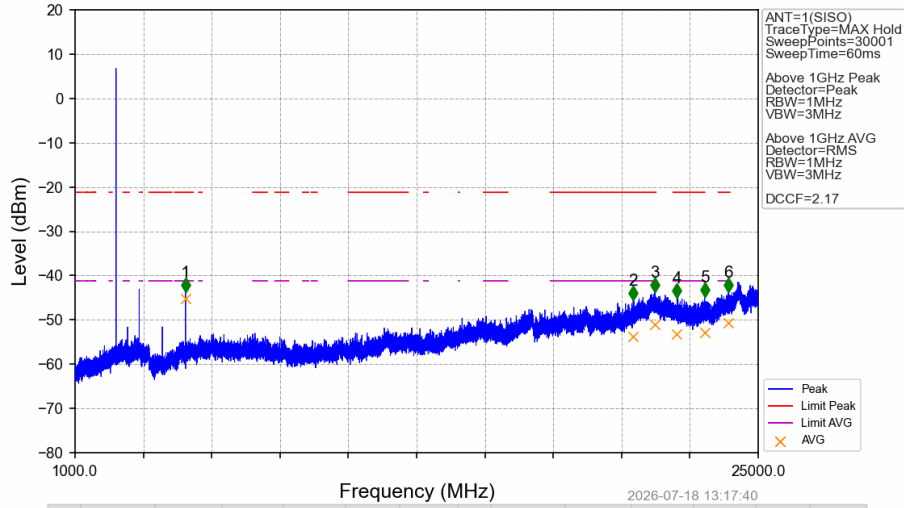
Mode	TX Type	Frequency (MHz)	ANT	Level of Unwanted Emissions (dBm)		Verdict
				Result	Limit	
1M	SISO	2402	1	Refer To Test Graph		Pass
		2440	1	Refer To Test Graph		Pass
		2480	1	Refer To Test Graph		Pass
2M	SISO	2402	1	Refer To Test Graph		Pass
		2440	1	Refer To Test Graph		Pass
		2480	1	Refer To Test Graph		Pass

6.2 Test Graph

6.2.1 RSE

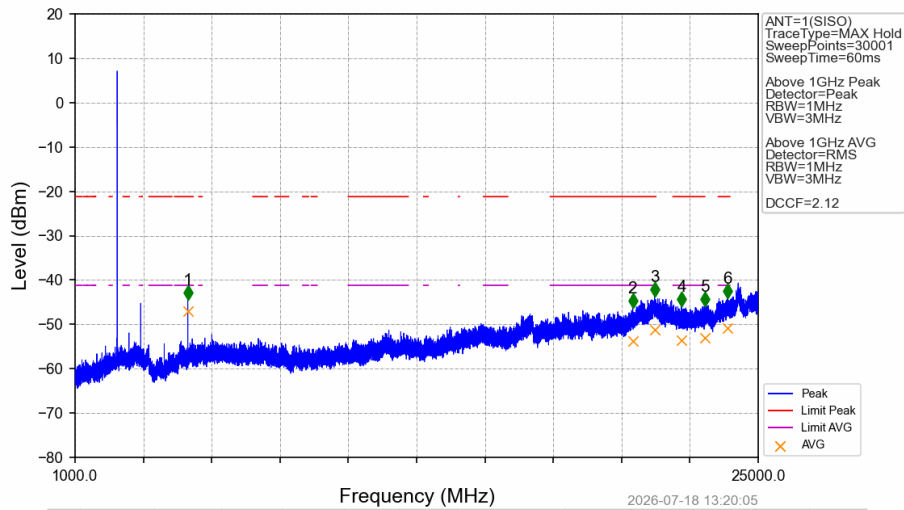


1M MCH 2440MHz Ant1 NTN



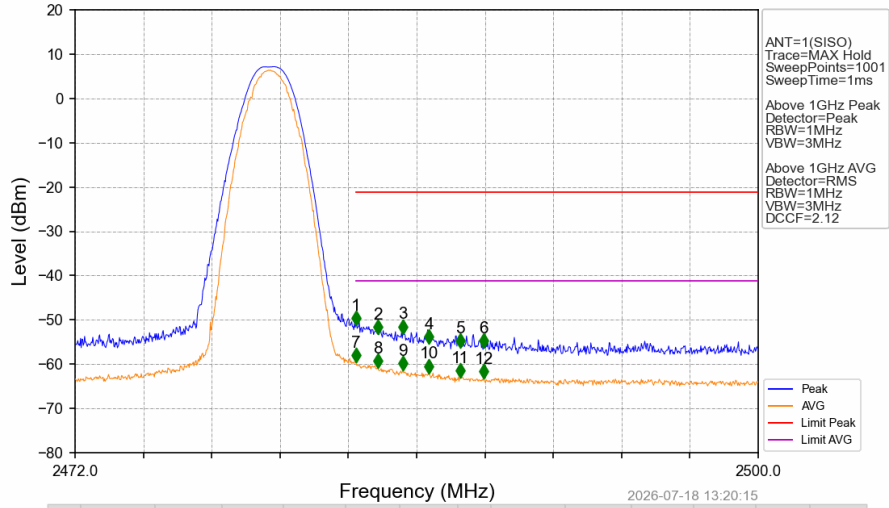
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	4880.8	-43.64	-21.20	22.44	Pass	Peak	7	4880.8	-45.26	-41.20	4.06	Pass	AVG
2	20608.8	-45.50	-21.20	24.30	Pass	Peak	8	20608.8	-53.84	-41.20	12.64	Pass	AVG
3	21360.8	-43.65	-21.20	22.45	Pass	Peak	9	21360.8	-51.08	-41.20	9.88	Pass	AVG
4	22145.6	-45.06	-21.20	23.86	Pass	Peak	10	22145.6	-53.24	-41.20	12.04	Pass	AVG
5	23119.2	-44.85	-21.20	23.65	Pass	Peak	11	23119.2	-52.88	-41.20	11.68	Pass	AVG
6	23950.4	-43.70	-21.20	22.50	Pass	Peak	12	23950.4	-50.74	-41.20	9.54	Pass	AVG

1M_HCH_2480MHz_Ant1 NTN

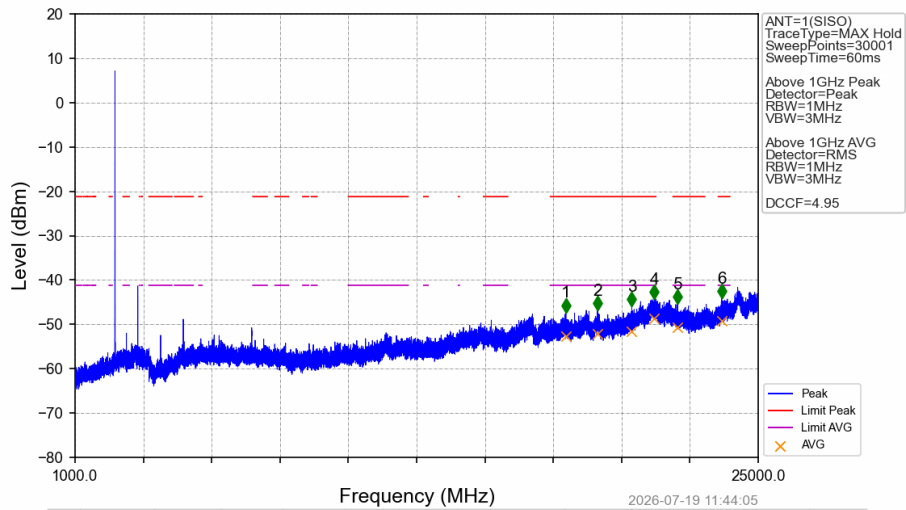


No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	4960	-44.44	-21.20	23.24	Pass	Peak	7	4960	-47.00	-41.20	5.80	Pass	AVG
2	20593.6	-46.17	-21.20	24.97	Pass	Peak	8	20593.6	-53.74	-41.20	12.54	Pass	AVG
3	21357.6	-43.71	-21.20	22.51	Pass	Peak	9	21357.6	-51.20	-41.20	10.00	Pass	AVG
4	22312	-45.93	-21.20	24.73	Pass	Peak	10	22312	-53.56	-41.20	12.36	Pass	AVG
5	23118.4	-45.81	-21.20	24.61	Pass	Peak	11	23118.4	-53.07	-41.20	11.87	Pass	AVG
6	23924.8	-44.13	-21.20	22.93	Pass	Peak	12	23924.8	-50.89	-41.20	9.69	Pass	AVG

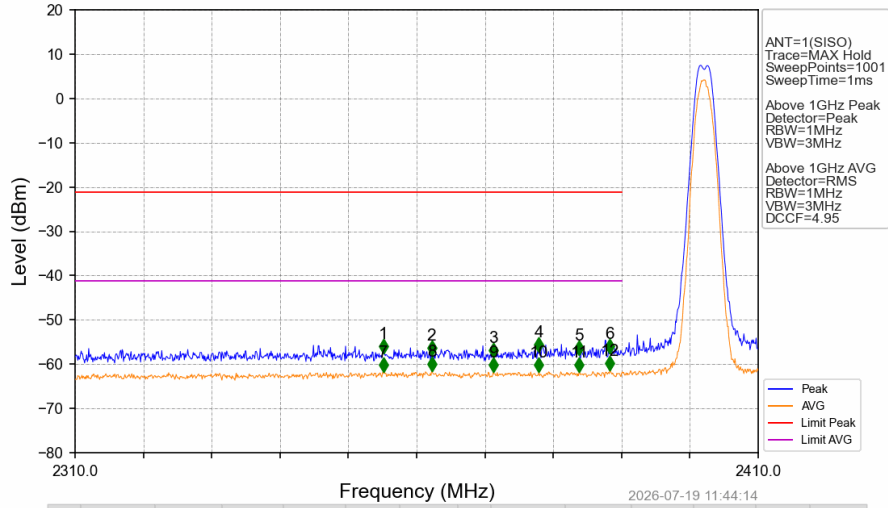
1M HCH 2480MHz Ant1 NTV



2M LCH 2402MHz Ant1 NTV

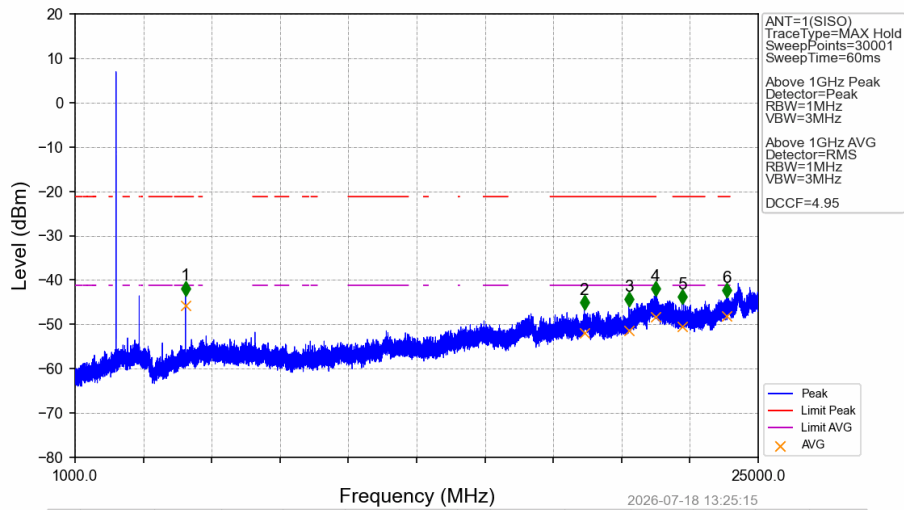


2M LCH 2402MHz Ant1 NTV



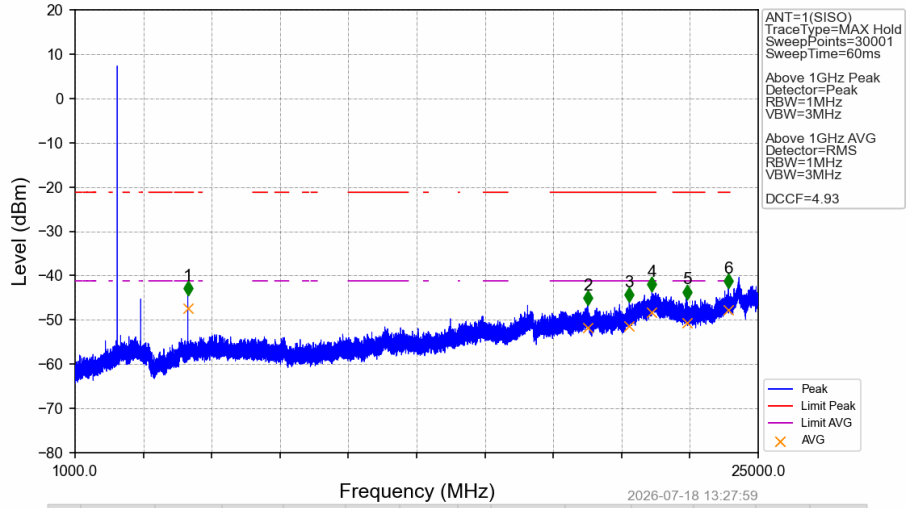
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	2355.100	-57.49	-21.20	36.29	Pass	Peak	7	2355.100	-61.75	-41.20	20.55	Pass	AVG
2	2362.200	-57.87	-21.20	36.67	Pass	Peak	8	2362.200	-61.59	-41.20	20.39	Pass	AVG
3	2371.200	-58.43	-21.20	37.23	Pass	Peak	9	2371.200	-61.81	-41.20	20.61	Pass	AVG
4	2377.900	-57.17	-21.20	35.97	Pass	Peak	10	2377.900	-61.69	-41.20	20.49	Pass	AVG
5	2383.800	-57.87	-21.20	36.67	Pass	Peak	11	2383.800	-61.72	-41.20	20.52	Pass	AVG
6	2388.300	-57.60	-21.20	36.40	Pass	Peak	12	2388.300	-61.33	-41.20	20.13	Pass	AVG

2M_MCH 2440MHz Ant1 NTV



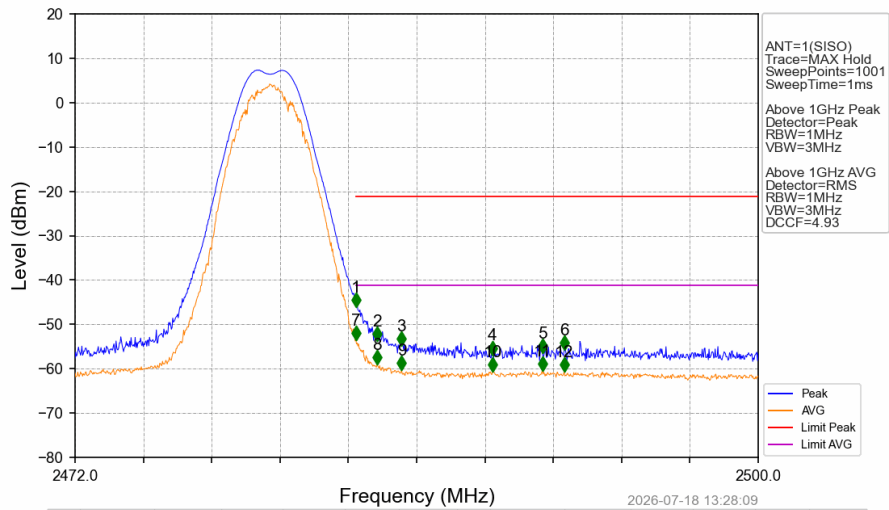
No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	4879.2	-43.43	-21.20	22.23	Pass	Peak	7	4879.2	-45.79	-41.20	4.59	Pass	AVG
2	18890.4	-46.67	-21.20	25.47	Pass	Peak	8	18890.4	-51.89	-41.20	10.69	Pass	AVG
3	20449.6	-45.93	-21.20	24.73	Pass	Peak	9	20449.6	-51.41	-41.20	10.21	Pass	AVG
4	21387.2	-43.52	-21.20	22.32	Pass	Peak	10	21387.2	-48.25	-41.20	7.05	Pass	AVG
5	22320.8	-45.31	-21.20	24.11	Pass	Peak	11	22320.8	-50.53	-41.20	9.33	Pass	AVG
6	23892	-43.79	-21.20	22.59	Pass	Peak	12	23892	-48.11	-41.20	6.91	Pass	AVG

2M HCH 2480MHz Ant1 NTV



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	4959.2	-44.42	-21.20	23.22	Pass	Peak	7	4959.2	-47.39	-41.20	6.19	Pass	AVG
2	19008.8	-46.57	-21.20	25.37	Pass	Peak	8	19008.8	-51.76	-41.20	10.56	Pass	AVG
3	20468.8	-45.92	-21.20	24.72	Pass	Peak	9	20468.8	-51.45	-41.20	10.25	Pass	AVG
4	21265.6	-43.50	-21.20	22.30	Pass	Peak	10	21265.6	-48.23	-41.20	7.03	Pass	AVG
5	22492.8	-45.25	-21.20	24.05	Pass	Peak	11	22492.8	-50.71	-41.20	9.51	Pass	AVG
6	23952.8	-42.74	-21.20	21.54	Pass	Peak	12	23952.8	-47.83	-41.20	6.63	Pass	AVG

2M_HCH_2480MHz_Ant1_NTV



No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark	No	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Status	Remark
1	2483.508	-45.99	-21.20	24.79	Pass	Peak	7	2483.508	-53.50	-41.20	12.30	Pass	AVG
2	2484.376	-53.67	-21.20	32.47	Pass	Peak	8	2484.376	-59.06	-41.20	17.86	Pass	AVG
3	2485.384	-54.81	-21.20	33.61	Pass	Peak	9	2485.384	-60.30	-41.20	19.10	Pass	AVG
4	2489.108	-56.91	-21.20	35.71	Pass	Peak	10	2489.108	-60.63	-41.20	19.43	Pass	AVG
5	2491.152	-56.53	-21.20	35.33	Pass	Peak	11	2491.152	-60.50	-41.20	19.30	Pass	AVG
6	2492.048	-55.76	-21.20	34.56	Pass	Peak	12	2492.048	-60.62	-41.20	19.42	Pass	AVG